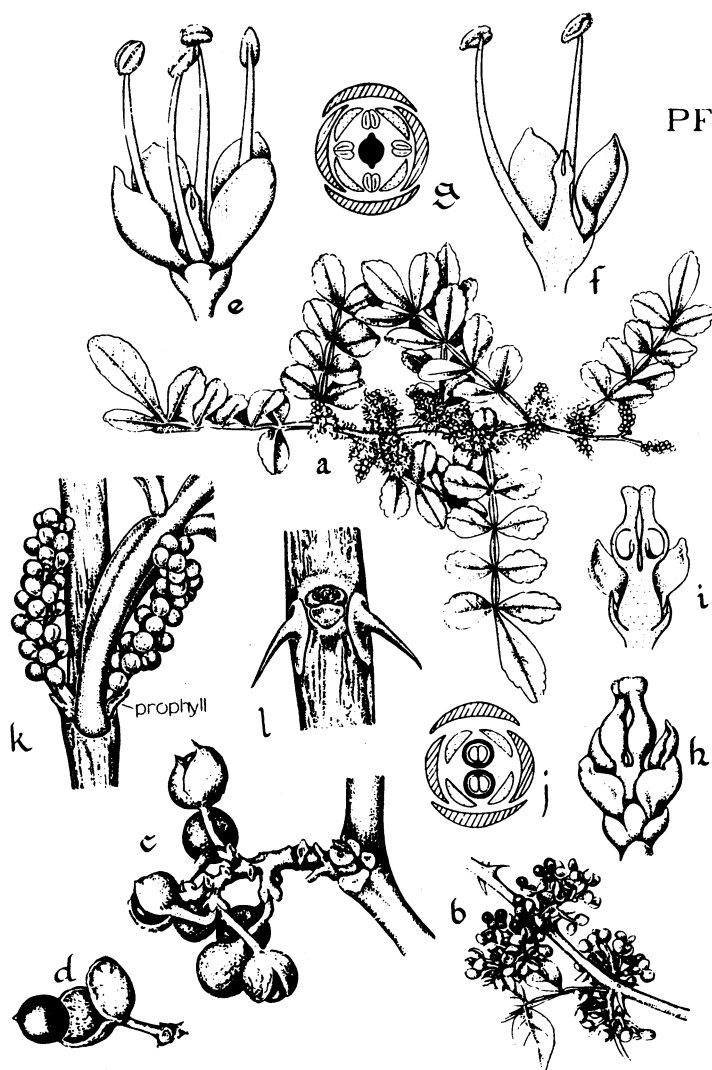


- 38 Wickline SA, Thomas LJ III, Miller JG, Sobel BE, Perez JE. A relationship between ultrasonic integrated backscatter and myocardial contractile function. *J Clin Invest* 1985;76:2151-60.
- 39 Rijsterborgh H, Mastik F, Lancée CT, Sassen LMA, Verdouw PD, Roelandt J, *et al*. The relative contributions of myocardial wall thickness and ischaemia to ultrasonic myocardial integrated backscatter during experimental ischaemia. *Ultrasound Med Biol* 1991;17:41-8.
- 40 Aygen M, Popp RL. Influence of the orientation of myocardial fibres on echocardiographic images. *Am J Cardiol* 1987;60:147-52.
- 41 Shung KK, Siegelmann RA, Reed JM. Scattering of ultrasound by blood. *IEEE Trans Biomed Eng* 1976;23:460-7.
- 42 Shung KK, Reid JM. Ultrasonic scattering from tissues. *Proceedings of the IGEE Ultrasonics Symposium* 1977;77(CH1264-ISU):230-3.
- 43 Mimbs JW, Bauwens D, Cohen RD, O'Donnell M, Miller JG, Sobel BE. Effects of myocardial ischemia on quantitative ultrasonic backscatter and identification of responsible determinants. *Circ Res* 1981;49:89-96.

PLANTS IN CARDIOLOGY

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Zanthoxylum fagara
Tomlinson TB. *The biology of trees native to tropical Florida*. Allston: Harvard University Print Office, 1980:362.
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Fagarine

In 1932 G Stuckert was the first to isolate a new alkaloid, fagarine, from the Argentinian plant *Fagara coco* (Rutaceae); and with A Sartori he showed that it had a depressant action on the myocardium of rabbits. Further work at the University of Cordoba by Moisset de Espanés and others showed that fagarine raised the threshold for atrial and ventricular fibrillation in response to faradic stimulation, and that it decreased the incidence of ventricular fibrillation after coronary ligation in dogs. In all these experiments it was more effective than quinidine. Then A Taquini tried its effect in six patients with atrial flutter or fibrillation who were resistant to quinidine. In all of them intramuscular fagarine restored sinus rhythm within 30 minutes (*Science* 1945;102:69-70). In 1948 David Scherf showed that fagarine reliably reverted atrial fibrillation induced by aconitine in dogs (*Proceedings of the Society for Experimental Biology and Medicine* 1948;67:59-60).

The genus *Fagara* has been merged with *Zanthoxylum* and the name of the original *F coco* (Gill.) Engl. is now *Z coco* Gill ex Hook and Arn. The illustration is of a closely related species. The South African plant *Z capensis*, a "fever tree", is used medicinally.

The family Rutaceae is widespread, especially in the tropics, and it includes *Pilocarpus microphyllus*, the source of pilocarpine. Citrus fruits belong to this family. Rutaceae is the fourth family of plants described in *Plants in Cardiology* with antiarrhythmic properties—quinidine, procaine, and lignocaine all being derived from other families. It would be interesting to know whether fagarine is still under investigation.

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